PCT/EP03/03713

CLAIMS

1. A method of screening for agents which decrease the activity of human transient receptor channel, comprising the steps of:

5

i) contacting a test compound with any human transient receptor channel polypeptide encoded by any polynucleotide being selected from the group consisting of:

10

 a) a polynucleotide encoding a human transient receptor channel polypeptide comprising an amino acid sequence selected from the group constisting of:

15

amino acid sequences which are at least about 50% identical to any one of the amino acid sequences shown in SEQ ID NO:12 to 21; and

any one of the amino acid sequences shown in SEQ ID NO:12 to 21;

20

a polynucleotide comprising any one of the sequences of SEQ
ID NOS:1 to 11;

25

c) a polynucleotide which hybridizes under stringent conditions to a polynucleotide specified in (a) and (b) and encodes a human transient receptor channel;

30

d) a polynucleotide the nucleic acid sequence of which deviates from the nucleic acid sequences specified in (a) to (c) due to the degeneration of the genetic code and encodes a human transient receptor channel; and e) a polynucleotide, which represents a fragment, derivative or allelic variation of a nucleic acid sequence specified in (a) to (d) and encodes a human transient receptor channel;

5

ii) detecting binding of the test compound to the human transient receptor channel polypeptide,

10

wherein a test compound which binds to the polypeptide is identified as a potential therapeutic agent for decreasing the activity of a human transient receptor channel and for treating urological disorders.

2. A method of screening for agents which regulate the activity of a human transient receptor channel, comprising the steps of:

15

i) contacting a test compound with a human transient receptor channel polypeptide encoded by any of the polynucleotides polynucleotide being selected from the group consisting of:

20

a) a polynucleotide encoding a human transient receptor channel polypeptide comprising an amino acid sequence selected from the group constisting of:

25

amino acid sequences which are at least about 50% identical to any one of the amino acid sequences shown in SEQ ID NO:12 to 21; and

any one of the amino acid sequences shown in SEQ ID NO:12 to 21;

5

10

15

20

25

30

- b) a polynucleotide comprising the sequence of SEQ ID NOS:1 to 11;
- c) a polynucleotide which hybridizes under stringent conditions to a polynucleotide specified in (a) and (b) and encodes a human transient receptor channel;
- d) a polynucleotide the nucleic acid sequence of which deviates from the nucleic acid sequences specified in (a) to (c) due to the degeneration of the genetic code and encodes a human transient receptor channel; and
- e) a polynucleotide, which represents a fragment, derivative or allelic variation of a nucleic acid sequence specified in (a) to (d) and encodes a human transient receptor channel; and
- ii) detecting a human transient receptor channel activity of the polypeptide,

wherein a test compound which increases the human transient receptor channel activity is identified as a potential therapeutic agent for increasing the activity of the human transient receptor channel and useful to treat urological disorders, and wherein a test compound which decreases the human transient receptor channel activity of the polypeptide is identified as a potential therapeutic agent for decreasing the activity of the human transient receptor channel and useful to treat urological disorders.

3. A method of screening for agents which decrease the activity of a human transient receptor channel, comprising the steps of:

30

	i) ·	cont	acting a test compound with any polynucleotide polynucleotide
		being	selected from the group consisting of:
		a) .	a polynucleotide encoding a human transient receptor channel
5			polypeptide comprising an amino acid sequence selected from
			the group constisting of:
			amino acid sequences which are at least about 50% identical to
			any one of the amino acid sequences shown in SEQ ID NO:12
10			to 21; andny one of the amino acid sequences shown in SEQ
			ID NO:12 to 21;
•		b)	a polynucleotide comprising the sequence of SEQ ID NOS:1 to
	•		11;
15	• .		
		c)	a polynucleotide which hybridizes under stringent conditions
			to a polynucleotide specified in (a) and (b) and encodes a
ŕ	•		human transient receptor channel;
20		d)	a polynucleotide the nucleic acid sequence of which deviates
			from the nucleic acid sequences specified in (a) to (c) due to
	•		the degeneration of the genetic code and encodes a human
			transient receptor channel; and
25		e)	a polynucleotide, which represents a fragment, derivative or
		·	allelic variation of a nucleic acid sequence specified in (a) to
			(d) and encodes a human transient receptor channel; and
	· ii)	dete	ecting binding of the test compound to the polynucleotide,

wherein a test compound which binds to the polynucleotide is identified as a potential therapeutic agent for decreasing the activity of the human transient receptor channel and useful to treat urological disorders.

5

4. A method of reducing the activity of human transient receptor channel, comprising the step of:

contacting a cell with a reagent which specifically binds to any polynucleotide being selected from the group consisting of:

a) a polynucleotide encoding a human transient receptor channel polypeptide comprising an amino acid sequence selected from the group constisting of:

15

10

amino acid sequences which are at least about 50% identical to any one of the amino acid sequences shown in SEQ ID NO:12 to 21; and

any one of the amino acid sequences shown in SEQ ID NO:12 to 21;

20

- b) a polynucleotide comprising the sequence of SEQ ID NOS:1 to 11;
- c) a polynucleotide which hybridizes under stringent conditions to a polynucleotide specified in (a) and (b) and encodes a human transient receptor channel;

25

30

 a polynucleotide the nucleic acid sequence of which deviates from the nucleic acid sequences specified in (a) to (c) due to the degeneration of the genetic code and encodes a human transient receptor channel;
and e) a polynucleotide, which represents a fragment, derivative or allelic variation of a nucleic acid sequence specified in (a) to (d) and encodes a human transient receptor channel

5

or a human transient receptor channel polypeptide encoded by the any one of the polynucleotides (a) to (e), whereby the activity of human transient receptor channel is reduced.

10

- A reagent that modulates the activity of a human transient receptor channel polypeptide or polynucleotide, wherein said reagent is identified by the method of any of the claims 1 to 4 and useful to treat urological disorders.
- 6. A pharmaceutical composition for the treatment of urological disorders, comprising:

comprising:

the reagent of claim 5, and a pharmaceutically acceptable carrier.

7. Use of the reagent of claim 5 in the preparation of a medicament for modulating the activity of human transient receptor channel in a urological disorder.

20

25

15

8. Use of claim 7, wherein the urological disorder is at least one selected from the group consisting of a disorder caused by overactivity of bladder, hyperflexia, benign prostatic hyperplasia, and one of lower urinary tract syndromes.